

Plant Review Worksheet | Part 2

Diversity of Flowering Plants

1. What are the two ways flowering plants allow for pollination?
 - a. Wind
 - b. Animals
2. What is a fruit? Mature flower ovary
3. What is the role of fruit?
 - a. Seed dispersal
 - b. Protect & nourish plant embryo.
4. Botanists classify flowering plants into two groups based on their # of Cotyledons (Seed leaves)
5. For the following pictures and descriptions write “M” for monocot or “D” for dicot:

Netlike veins



Dicot

Flower parts in multiples of three



Monocot

Scattered vascular tissue



Monocot

Two cotyledons



Dicot

Flower parts in multiples of four or five



Dicot

One cotyledon



Monocot

Parallel veins



Monocot

Ringed vascular tissue



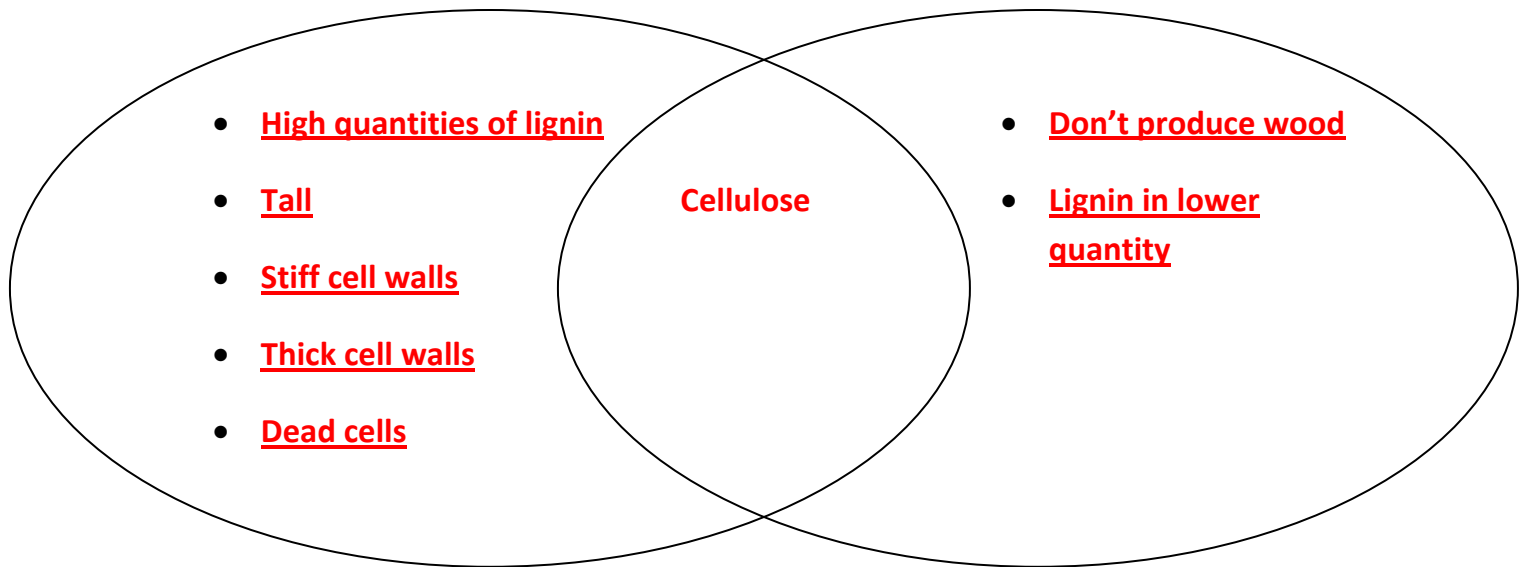
Dicot

6. Flowering plants can also be categorized by stem type and lifespan.

7. Compare and contrast flowering plants two stem types:

Woody

Herbaceous



8. Match the following plant life spans with their correct definition:

b Plants that take 2 years to complete their life cycle.

c Plants that live for more than 2 years

a Plants that mature from seeds, produce flowers,
and then die all in one year.

a. Annuals

b. Biennials

c. Perennials

Reproduction in Flowering Plants

9. Answer the following questions, then **CIRCLE** the type of pollination that is **more efficient**:

a. Flowers that are small and produce large amounts of pollen are usually pollinated by?

Wind

b. Flowers that are large and produce small amounts of pollen are usually pollinated by?

Animals

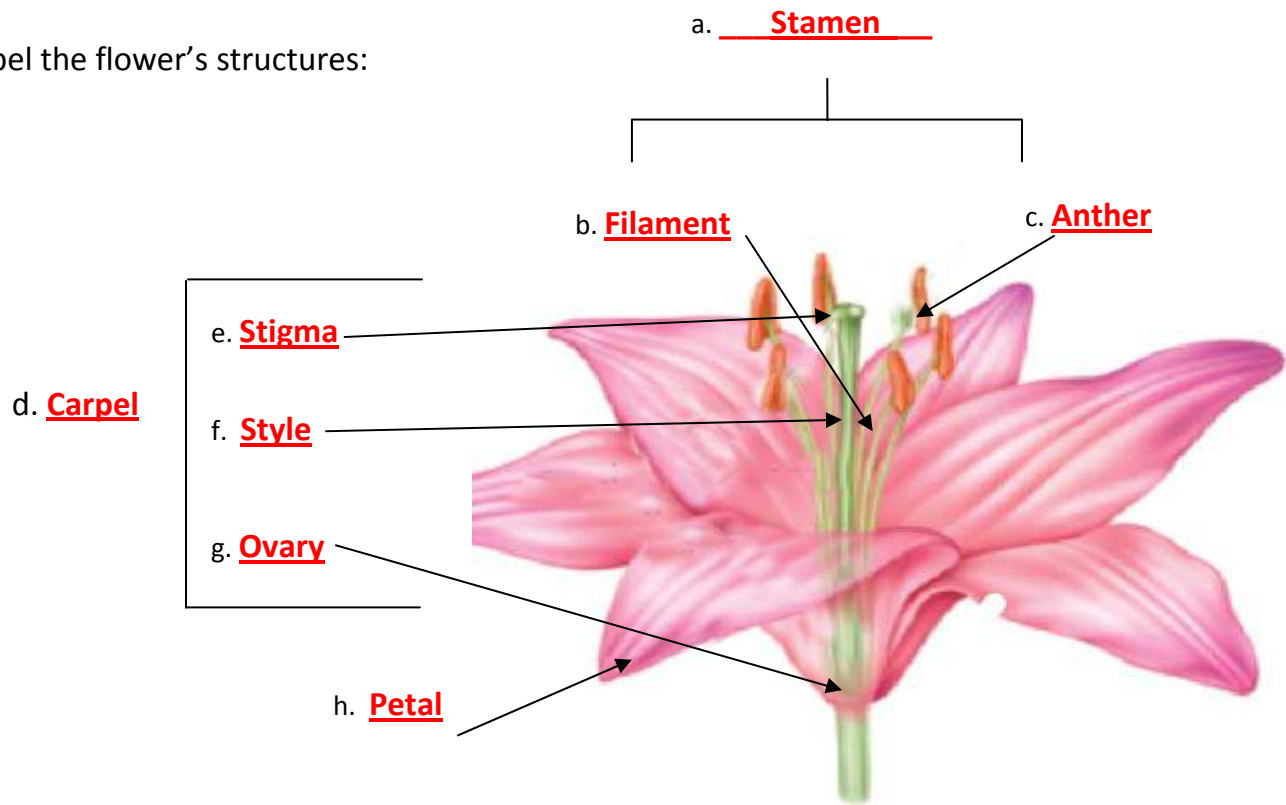
c. Why is (fill in answer) Animal pollination advantageous?

Requires less energy output (pollen creation) from plant which makes it more efficient.

10. What is an endosperm? The food source for the developing plant embryo.

a. How does it form? One sperm fuses with the two polar nuclei in the plant ovary creating a triploid (3n) endosperm.

11. Label the flower's structures:



12. Fill in the blanks:

The outermost layer of a flower is made of sepals which protect the flower. Just inside the outermost layer is another layer of modified leaves called petals, which can be brightly colored. Most flowers have both male and female structures. A stamen is the male structure of a flower and it has a stalk called a filament. This stalk supports an anther which produces the male gametophytes: pollen grains. The innermost part of the flower is the female structure called the carpel. Each female structure has three parts. The stigma is the top part that is sticky and holds the pollen grains when they land there. The style is the tube that leads from the top part of the carpel to the base of the flower. This base is called the ovary, and it is where female gametophytes are produced.

13. Answer the following questions about the angiosperm's male gametophyte:

- The anthers produce pollen grains which divide by meiosis. This means the spores are: **(circle one)** haploid or diploid.
- The spores divide again, but by mitosis. This means the spores are: **(circle one)** haploid or diploid.
- How many cells make up a single pollen grain? **THREE!**

14. Place the steps of the angiosperm life cycle in order, from the step started for you:

- 1 Pollen lands on the stigma = pollination.
- 3 The sperm travel down the pollen tube.
- 6 Each ovule becomes a seed and the surrounding ovary grows into a fruit.
- 2 One haploid cell of pollen grain forms the pollen tube. The other haploid cell forms 2 sperm nuclei.
- 5 A triploid (3n) endosperm forms.
- 7 Seeds get dispersed.
- 8 Seed germinates, and the cycle starts over.
- 4 One sperm fertilizes the egg and the other joins with the 2 polar nuclei.

15. What is double fertilization?

When one sperm fertilizes the egg = zygote, and the other sperm forms with the two polar nuclei = triploid endosperm,

16. Compare and contrast the following types of seed producing plants:

Gymnosperms

Angiosperms

